



**SENT VIA FEDERAL EXPRESS**

January 10, 2023

Division of Solid and Hazardous Waste  
New Jersey Department of Environmental Protection  
401 East State Street  
PO Box 420, Mail Code 401-02C  
Trenton, New Jersey 08625

**Re: Quarterly Progress Report – Fourth Quarter 2022**  
**Closure Approval No. LCB220001**  
**Facility No. 132708**  
**IAOC C1 Ground Water and Soil Remediation Projects**  
Former Tank 319 Waterfront Landfill Area (IAOC C1) – Block 586, Lot 17  
Bayway Refinery Complex  
1400 Park Avenue  
City of Linden, Union County, New Jersey

To Whom it May Concern,

On behalf of ExxonMobil Environmental and Property Solutions Company (ExxonMobil), Kleinfelder, Inc. (Kleinfelder) is submitting this Quarterly Progress Report in accordance with the above-referenced Landfill Closure and Post-Closure Plan Approval. This approval was obtained in support of the construction of the New Jersey Department of Environmental Protection (NJDEP) approved remedial actions for ground water and soil in the area known as the Former Tank 319 Waterfront Landfill Area (Investigative Area of Concern [IAOC] C1) at the Bayway Refinery Complex (BRC) in Linden, New Jersey.

**Introduction**

The portion of the BRC known as IAOC C1 encompasses approximately 18 acres in total. While this entire area is referred to as the Former Tank 319 Waterfront Landfill Area, the area of historic waste deposition, or landfill limit, is bound by the gravel perimeter road within IAOC C1 and totals approximately 11 acres. To facilitate the start of construction, the NJDEP-approved remedial actions for IAOC C1 were permitted separately as the IAOC C1 Ground Water and IAOC C1 Soil Remediation Projects.

The primary components of the IAOC C1 Ground Water Remediation Project include the construction of a steel sheet pile barrier wall between the border of IAOC C1 and Morses Creek, and the installation of a ground water recovery system designed to maintain hydraulic control across IAOC C1. The hydraulic control system consists of vertical recovery wells within IAOC C1 that will connect via subsurface piping to an equipment container to be located outside the limits of the former landfill unit. The IAOC C1 Soil Remediation Project involves the construction of a vegetated soil cover system over the limits of the Former Tank 319 Waterfront Landfill to provide protection from direct contact with contaminants in surficial soils and to formally close the landfill unit in accordance with the New Jersey Solid Waste Regulations.

Although construction activities were initiated in the fourth quarter of 2019, excavation work within the limits of the former landfill unit did not begin until late February 2020. As required by the original Disruption Approval<sup>1</sup>, the Bureau of Solid Waste Compliance and Enforcement was notified via telephone on February 20, 2020, prior to the initiation of excavation activities within the former landfill unit. Quarterly Progress Reports have been submitted to the Division of Solid and Hazardous Waste since this date, with this report summarizing activities completed through December 31, 2022.

### **Progress Summary**

The current statuses of the IAOC C1 Ground Water and Soil Remediation Projects are summarized in the following sections.

#### **IAOC C1 Ground Water Remediation Project**

Construction of the ground water remedial action was initiated in late 2019. Figure 1 is a plan view of the IAOC C1 area that depicts the IAOC C1 boundaries, the limits of the former landfill unit, and the proposed locations of the ground water remedial action components listed above. Where applicable, the construction status of the various components is also highlighted or otherwise indicated. Figure 1 does not reflect as-built conditions. For reference, the information provided on Figure 1 reflects the status of all proposed ground water remedial action construction activities within IAOC C1, including activities within and outside of the landfill limits.

IAOC C1 Ground Water Remediation Project construction activities completed during the fourth quarter of 2022 within the landfill boundaries included maintenance of the soil erosion and sediment control (SESC) measures, further construction and maintenance of the perimeter roadway, and operation of the groundwater recovery system.

The IAOC C1 Ground Water Remediation Project activities completed or in progress through December 31, 2022, are summarized as follows:

- Clearing and grubbing within the limits of disturbance (LOD) shown on Figure 1 is complete.
- SESC measures have been implemented and continue to be maintained in accordance with certified SESC Plan No. 2018-3391.
- Construction stormwater is being managed and the SESC measures continue to be maintained and inspected per the SESC Plan requirements, the certified Stormwater Pollution Prevention Plan (SPPP), and Individual Stormwater Permit Authorization No. NJ0297755. Weekly SPPP inspections were completed during this reporting period.
- The IAOC C1 steel sheet pile wall, which is located outside of the limits of the former landfill, is installed in its entirety (approximately 575 linear feet). Following advancement, the tops of the sheets were cut to a consistent elevation just below existing grade and backfilled.
- Wells GMW-26, RW-C1, RW-C4, and RW-C5 were properly abandoned.

---

<sup>1</sup> *Disruption Approval No. LCA180001 was obtained to facilitate the start of the IAOC C1 Ground Water Remediation Project and was superseded by Closure and Post-Closure Plan Approval No. LCB220001 issued on March 10, 2022.*

- Drilling is complete for each of the 12 IAOC C1 recovery wells, identified as RW-C1R, RW-C3R, RW-C4R, RW-C5R, and RW-C6 through RW-C13.
- Drilling is complete for the ground water monitoring wells, identified as GMW-726 through GMW-736, GMW-779, GMW-780, and GMW-26R.
- Trenching activities are ongoing, with approximately 1,450 linear feet of shallow trenches excavated to depths of up to approximately 48 inches below original grade. Trench excavation depths vary and are designed to allow the top of the piping to be installed at a minimum depth of approximately 36 inches (i.e., the frost line) below final grade. The final grade takes into account cut and fill activities associated with the final cover system to be installed as part of the IAOC C1 Soil Remediation Project.
- Pipe bedding material has been placed in the excavated trenches and high-density polyethylene (HDPE) conveyance piping has been installed.
- Portions of the piping trench have been backfilled with approved fill materials. As of December 31, 2022, approximately 90% of the piping trench excavated within IAOC C1 has been backfilled and compacted.
- Vaults have been set, wellhead piping has been constructed, and pneumatic pumps have been installed for the 12 recovery wells.
- Start-up testing of the recovery system for IAOC C1 was conducted in July and August 2022, and operations continued through December 2022.
- Construction of the final gravel roadway around the perimeter of the former landfill unit is ongoing.
- Construction dewatering has been completed on an as-needed basis, with recovered ground water transported to the BRC's onsite wastewater treatment plant. Stormwater that has contacted potentially impacted material (e.g., stormwater accumulating within the stockpile area) has also been recovered and transported to the wastewater treatment plant for treatment and disposal.
- Backfill materials have been imported, including sand, rock screenings, dense graded aggregate (DGA), clean stone or gravel, and topsoil. All imported materials have met the NJDEP's clean fill requirements and have been sourced from licensed quarries. Documentation has been obtained from the quarries to certify that the materials were sourced from virgin materials/locations, free from contamination, and have not been subjected to discharges of hazardous substances at any time. Contractor quality control (QC) testing results have also been provided by the remedial contractor in accordance with project specifications. The fill material certifications, QC testing results, weight tickets for each truck of material delivered to the site, and compaction testing results are maintained in the project files.
- Restoration activities including placement of topsoil, seeding, planting of trees and shrubs, and installation of deer fence for disturbances associated with the Ground Water Remediation Project are complete. These restoration areas are outside of the limits of the former landfill unit. Watering and vegetation management activities are ongoing.

Final trenching and piping installation activities in the northeast corner of IAOC C1, which include the crossing of an emergency access roadway and a property owned by Conrail, are expected to be completed during the first quarter of 2023. A shallow, temporary pipe crossing was previously installed to allow for start-up testing and limited operation of the IAOC C1 recovery system. This

temporary piping was removed from service in December 2022 to facilitate the final trenching and piping installation activities. Recovery from IAOC C1 will resume following completion of the work.

#### IAOC C1 Soil Remediation Project

With the issue of the Closure and Post-Closure Plan Approval dated August 27, 2020, permitting for the IAOC C1 Soil Remediation Project is complete. Construction activities associated with the IAOC C1 Soil Remediation project were initiated in the first quarter of 2021. Figure 2 is a plan view of the IAOC C1 area that depicts the IAOC C1 boundaries and the limits of the former landfill unit. Where applicable, the construction status of the various components is also highlighted or otherwise indicated. Figure 2 does not reflect as-built conditions.

Activities completed during this reporting period included maintenance of SESC measures, perimeter air monitoring, surveying of settlement monitoring stations, continued construction of portions of the perimeter gravel roadway, installation of a culvert pipe, and placement and compaction of cover materials.

The IAOC C1 Soil Remediation Project activities completed or in progress through December 31, 2022, are summarized as follows:

- SESC measures have been implemented in accordance with certified SESC Plan No. 2019-3872.
- Construction stormwater is being managed and the SESC measures continue to be maintained and inspected per the SESC Plan requirements, the certified SPPP, and Individual Stormwater Permit Authorization No. NJ0297755. Weekly SPPP inspections were completed during this reporting period.
- Perimeter air monitoring activities have been conducted in general accordance with the approved Perimeter Air Monitoring Plan.
- Clearing of above-grade vegetation within the limits of the landfill shown on Figure 2 is complete.
- A linear low-density polyethylene (LLDPE) liner was installed around the base of the Public Service Electric and Gas Company (PSE&G) monopole where the presence of the grounding grid prevented construction of the low-permeability cover soil layer.
- A culvert pipe was installed in the northeast portion of IAOC C1 that will eventually transfer stormwater runoff from a portion of the soil cover system to a wetland area located to the north of the former landfill unit. The culvert pipe will remain sealed until the final cover system construction is complete and vegetation has been established.
- Stockpile inspection and maintenance activities are ongoing.
- Material placement and compaction within the designated surcharge area was completed, and settlement monitoring stations were constructed and monitored. Based on observed settlement rates, the monitoring period was concluded during the fourth quarter of 2022.
- The import, placement, and compaction of select fill below the 10-year flood hazard elevation of 8.5 feet is generally complete.
- The placement and compaction of general fill above elevation 8.5 feet is ongoing.
- The import, placement, and compaction of cover materials is ongoing, including the relocation of cover materials previously placed in the surcharge area.

- Imported select fill and cover materials have met the NJDEP's clean fill requirements and have been sourced from licensed quarries. Documentation has been obtained from the quarries to certify that the materials were sourced from virgin materials/locations, free from contamination, and have not been subjected to discharges of hazardous substances at any time. Imported topsoil has also been sampled in accordance with the NJDEP's clean fill guidance, with data submitted for Licensed Site Remediation Professional (LSRP) approval prior to import to the site. Contractor QC testing results have been provided by the remedial contractor in accordance with project specifications. The fill material certifications, QC testing results, weight tickets for each truck of material delivered to the site, and compaction testing results are maintained in the project files.
- Temporary seeding of the fill and cover materials placed within the limits of the former landfill unit was performed, where appropriate, based on the anticipated construction sequence and progress.
- Construction of portions of the final gravel roadway around the perimeter of the former landfill unit is ongoing.

### **Closing**

If there are any questions regarding the remedial construction progress summary presented herein or the proposed remediation activities, please do not hesitate to contact Matt Kuchta of Kleinfelder at [mkuchta@kleinfelder.com](mailto:mkuchta@kleinfelder.com) or (609) 631-1831.

### **List of Attachments**

Figure 1 – IAOC C1 Ground Water Remediation Project Summary as of December 31, 2022

Figure 2 – IAOC C1 Soil Remediation Project Summary as of December 31, 2022

### **Engineer's Certification**

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals under my supervision, I believe the submitted information is true, accurate and complete. Furthermore, I certify that all fill materials accepted at the site for any purpose were weighed and in compliance with the requirements outlined in the NJDEP's Fill Material Guidance for SRP Sites, and that all provisions and prohibitions of the disruption approval were complied with during disruption activities. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.



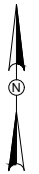
*[Signature]* 1/10/23  
 Matthew E. Kuchta  
 NJ P.E. License No. 24GE04844000

**Limitations**

Kleinfelder performed the services for this project under the Enabling Agreement with Procurement, a division of ExxonMobil Global Services Company (signed on November 28, 2012). Kleinfelder states that the services performed are consistent with professional standard of care defined as that level of services provided by similar professionals under like circumstances. This report is based on the regulatory standards in effect on the date of the report. It has been produced for the primary benefit of ExxonMobil Global Services Company and its affiliates.

Copy: M. Forlenza – ExxonMobil (electronically)  
S. Ferreira – USEPA (electronically)  
C. Zielinski – NJDEP (electronically)  
M. Renzulli – LSRP (electronically)  
G. Bakun – Phillips 66 (electronically)  
S. Pushpala – Phillips 66 (electronically)  
C. McCardell – Stantec (electronically)



[illegible]

THIS BAR IS 1 INCH IN LENGTH  
ON ORIGINAL DRAWING

IF IT'S NOT 1 INCH ON THIS  
SHEET ADJUST YOUR  
SCALES ACCORDINGLY



ORIGINAL DRAWING SIZE IS 22 x 34

**IAOC C1 GROUND WATER REMEDIATION PROJECT  
SUMMARY AS OF DECEMBER 31, 2022**

IAOC C1 GROUND WATER REMEDIATION  
BAYWAY REFINERY COMPLEX  
LINDEN, NEW JERSEY

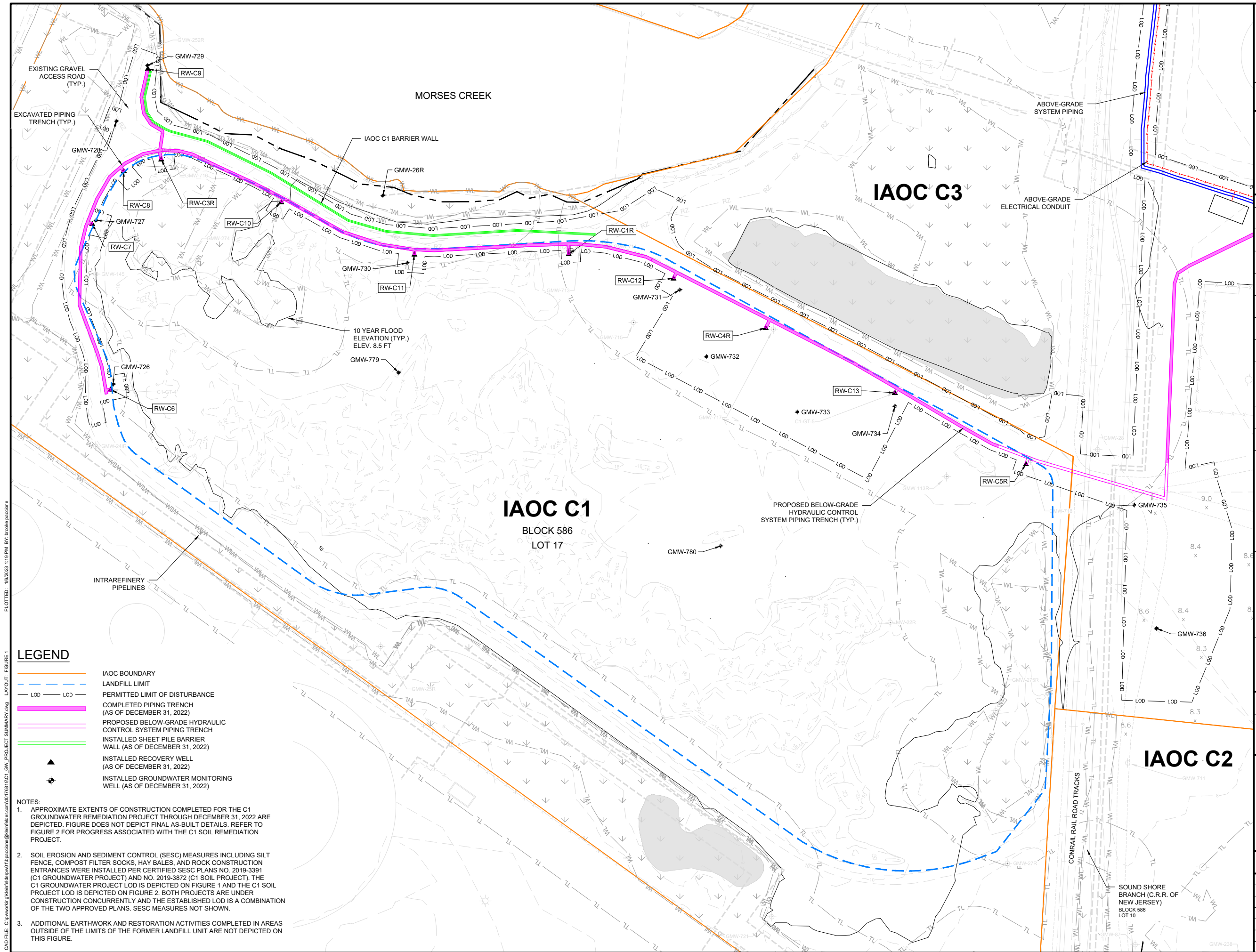
**ExxonMobil**  
Environmental and Property Solutions

## ISSUED FOR PERMITTING

PROJECT NO. 20223962.001A	
ISSUE DATE	10/10/2022
CURRENT REVISION	-
DESIGNED BY	BAP
DRAWN BY	BAP
CHECKED BY	MEK
APPROVED BY	MEK

FIGURE 1

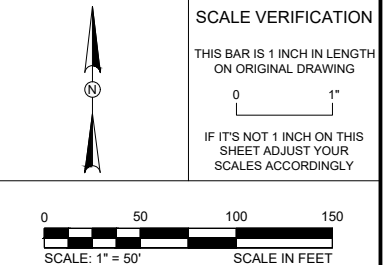
SHEET 1 of 2



PLOTTED: 1/6/2023 1:19 PM BY: brooke paccione

CAD FILE: C:\pwworking\kleinfelder\pww01\braccione\0176819\C1 GW PROJECT SUMMARY.dwg LAYOUT: FIGURE 1



[illegible]

ORIGINAL DRAWING SIZE IS 22 x 34

**IAOC C1 SOIL REMEDIATION PROJECT SUMMARY**  
**AS OF DECEMBER 31, 2022**

IAOC C1 SOIL REMEDIATION  
BAYWAY REFINERY COMPLEX  
LINDEN, NEW JERSEY

**ExxonMobil**  
Environmental and Property Solutions

ISSUED FOR PERMITTING		<div style="text-align: center; font-size: 2em; font-weight: bold;">FIGURE 2</div>
PROJECT NO.	20223962.001A	
ISSUE DATE	10/10/2022	
CURRENT REVISION	-	
DESIGNED BY	BAP	
DRAWN BY	BAP	
CHECKED BY	MEK	<div style="display: flex; justify-content: space-between;"> <span>SHEET</span> <span>2 of 2</span> </div>
APPROVED BY	MEK	

